AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Currently amended): A zinc oxide resistor comprising: ~~as a basic unit a structure of (a zinc-oxide single crystal/a bismuth-boron based oxide interface layer/a zinc-oxide single crystal) formed of~~

a pair of opposed zinc-oxide single crystals each containing cobalt and manganese dissolved therein in the form of a solid solution, and [[an]]

a bismuth-boron based oxide interface layer ~~which contains a primary component consisting of bismuth and boron and intervenes~~ intervening between said zinc-oxide single crystals,

wherein said zinc oxide resistor has non-ohmic properties or exhibits zinc-oxide varistor characteristics, ~~based on said intervening oxide interface layer,~~ and said bismuth-boron based oxide interface layer ~~is formed as~~ includes a bismuth-and-boron-containing oxide glass phase ~~by the action of said boron contained therein~~.

2. (Original): The zinc oxide resistor as defined in claim 1, wherein each of said opposed zinc-oxide single crystals contains said cobalt dissolved therein in the form of a solid solution, in an amount of 0.5 mol% or more with respect to zinc therein.

3. (Original): The zinc oxide resistor as defined in claim 1, wherein each of said opposed zinc-oxide single crystals contains said manganese dissolved therein in the form of a solid solution, in an amount of 0.05 mol% or more with respect to zinc therein.

4. (Currently amended): The zinc oxide resistor as defined in claim 1, wherein:

each of the opposed zinc-oxide single crystals has a length of 5 mm, a width of 5 mm, and a thickness of 0.5 mm;

said ~~oxide containing a primary component consisting of bismuth and boron~~ bismuth-boron based oxide interface layer~~, to be used for forming a junction between said opposed zinc-oxide single crystals, is a glass prepared in such a manner as to contain~~ comprises, in oxide wt% equivalent, 37.0 to 22.7 wt% of B_2O_3, 3.8 to 1.9 wt% of Co_2O_3 and 5.7 to 1.6 wt% of MnO_2, with the remainder being bismuth oxide.

5. (Original): The zinc oxide resistor as defined in claim 1, which exhibits an α-value of 20 or more, as a performance index of a zinc oxide varistor.

6. (Currently amended): The zinc oxide resistor as defined in claim 1, wherein said ~~(zinc-oxide single crystal/bismuth-boron based oxide interface layer/zinc-oxide single crystal) structure serving as said basic unit~~ zinc oxide resistor has an operating voltage of 2.9 ± 0.3 V, as a performance index of a zinc oxide varistor.

7. (Currently amended): The zinc oxide resistor as defined in claim 1, wherein ~~said (zinc-oxide single crystal/bismuth-boron based oxide interface layer/zinc-oxide single crystal) structure is provided in a number of n, wherein said structures of the number n are repeatedly superimposed in a layered manner, and provided with a zinc-oxide single crystal superimposed thereon to form a (n + 1) layered structure including the number (n + 1) of zinc-oxide single crystals and the number n of bismuth-boron based oxide interface layers,~~ (n+1) of zinc-oxide single crystals and (n) of bismuth-boron based oxide interface layer are alternately stacked, where n is a natural number of 2 or more, and

wherein said zinc-oxide resistor has an operating voltage of (2.9 ± 0.3) n V, as a performance index of a zinc oxide varistor.

8. (Currently amended): The zinc oxide resistor as defined in claim 1, wherein said ~~(zinc-oxide single crystal/bismuth-boron based oxide interface layer/zinc-oxide single crystal) structure is adjusted to have~~ zinc oxide resistor has an operating voltage of x V, as a performance index of a zinc oxide varistor, ~~and provided in a number of n,~~ wherein ~~said structures of number~~ n of zinc oxide resistors are electrically connected in series, where n is a natural number of 2 or more, wherein said zinc-oxide resistor has an operation voltage of n × x V, as a performance index of a zinc oxide varistor.

9. (Original): A method of producing the zinc oxide resistor as defined in claim 1, comprising:

disposing an oxide containing bismuth and boron, between a pair of opposed zinc-oxide single crystals to form a sandwich structure of (a zinc-oxide single crystal/a composition to be formed as a glass phase/a zinc-oxide single crystal);

heating and holding said sandwich structure at a high temperature allowing said oxide containing bismuth and boron, to be molten; and

rapidly cooling said heated sandwich structure to join said pair of zinc-oxide single crystals with a glass-phase oxide interface layer intervening therebetween.

10. (Original): The method as defined in claim 9, includes:

bringing each of two zinc-oxide single crystals into contact with a chunk of oxide cobalt, and heating said zinc-oxide single crystals and said chunk of oxide cobalt at a high temperature capable of inducing a diffusion reaction to diffuse cobalt from said chunk of oxide cobalt into said zinc-oxide single crystals so as to prepare each of said opposed zinc-oxide single crystals in such a manner as to have a cobalt concentration of 0.5 mol% or more.

11. (Original): The method as defined in claim 9, wherein:

each of the opposed zinc-oxide single crystals has a length of 5 mm, a width of 5 mm, and a thickness of 0.5 mm;

said oxide containing a primary component consisting of bismuth and boron, to be used for forming a junction between said opposed zinc-oxide single crystals, is a glass prepared in such a manner as to contain, in oxide wt% equivalent, 37.0 to 22.7 wt% of B_2O_3, 3.8 to 1.9 wt% of Co_2O_3 and 5.7 to 1.6 wt% of MnO_2, with the remainder being bismuth oxide.

12. (Original): The method as defined in claim 9, wherein said oxide containing a primary component consisting of bismuth and boron, to be used for forming a junction between said opposed zinc-oxide single crystals, is a glass, wherein said method includes:

flattening each surface of said opposed zinc-oxide single crystals through mirror polishing; and

adjusting a quantity of said glass in such a manner that a molar ratio of said glass quantity in an equivalent bismuth quantity contained in said glass to a quantity of said opposed zinc-oxide single crystals, is set at 1.2 mol%.